

Digital Communication in Vehicles

Agenda VectorAcademy

Delivery Format:	This Course is offered in Classroom or in Remote Format
Duration:	Classroom: 1 day Remote: 7 hours
Delivery Format:	Project Managers, Developers, users
Prerequisites:	None
Goal:	At the end of the training, the trainee will have acquired knowledge of the different system buses, topologies, physical layers as well as their properties, advantages and disadvantages in the deployment of communication networks

Evaluation:

Validation of acquired knowledge on protocol analysis.

Pedagogical, technical and supervisory resources:

Course material is sent to each trainee. A link will be sent to each participant to install the CANalyzer software and use hardware interfaces. The training will be carried out in adapted rooms.

Competence of the trainer: 15 years of experience in training related to embedded developments, network architectures.

Method of follow-up of the trainee:

A sign-off sheet must be validated by the trainee. A first satisfaction questionnaire is planned at the end of the training.

1. Introduction to Serial Bus Systems in Vehicles

- > Introduction of electronics in vehicles, control unit electronics, on-board system architectures
- > Motivation for serial system buses in communications (e.g. addressing, message, data protection, bus access and synchronization)
- > Types of serial bus architectures, area of application

2. Introduction to CAN (Controller Area Network)

- > CAN-bus
- > CAN Specification
- > Communications
- > CAN Message, Bus Access
- > Data Protection
- > Synchronization

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3. Introduction to LIN (Local Interconnect Network)

- > LIN Workflow, LIN Bus
- > LIN Specification
- > Communications
- > LIN message
- > Bus access, scheduling
- > Network status and management, synchronization
- > Diagnosis

4. Introduction to FlexRay

- > FlexRay Specification
- > Communication Cycles
- > FlexRay message
- > Bus access, scheduling

5. Comparison

- > Advantages and disadvantages of Communication Bus drivers
- > Comparative
- > Area of application
- > Practical cases